



Pintail duck photo by Peter LaTourette

Climate Change, Wildlife, and Wildlands

Trail Talk

Western Mountains and Plains



This outline offers suggestions for the elements of a talk on the potential impacts of climate change in the western mountains and plains region. You are encouraged to develop your own personal talk based on the materials in the *Climate Change, Wildlife, and Wildlands* toolkit; this outline is merely intended to provide ideas. You also may use the ideas in this outline to help you weave the topic of climate change into your talks on other subjects.

Visual Aids

- Trail cards of pintail duck, cutthroat trout, alpine meadow from the *Climate Change, Wildlife, and Wildlands* toolkit
- Flash card of Boulder Glacier in Glacier National Park printed out from the CD-ROM and laminated, if desired
- Global warming wheel card supplied with *Climate Change, Wildlife, and Wildlands* toolkit

Recommended Sites for Talk

Alpine glacier areas such as those in Glacier National Park, Olympic National Park, or North Cascades National Park. Ideas and approaches in this outline also may be modified for classroom discussions on climate change, glaciers, and mountain ecosystems.



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Goals

- To help visitors appreciate that global climate change is a serious issue that may affect life and the physical environment in the western mountains and plains.
- To help visitors realize that they can be part of the solution, rather than only part of the problem.

Objectives

- Visitors will be able to explain the potential magnitude and significance of changes in nature.
- Visitors will be able to explain why many scientists believe that humans are contributing to changes in climate that may have significant and long-lasting impacts on plants and wildlife.
- Visitors will be able to name at least two species of wildlife and two natural features (e.g., glaciers and alpine meadows) that may be affected by climate change.
- Visitors will be able to decide whether they believe their actions contribute to climate change and whether they want to help slow it.

- Visitors will be able to list at least two actions people can choose to take if they want to reduce greenhouse gas emissions.

Theme

Change is a natural feature of the environment, but not all changes are natural. Many scientists believe that human actions are exacerbating changes in climate that may have serious impacts on ecosystems in the western mountains and plains.

Introduction

(sections in *bold italics* are suggested language for talk)

- Begin with an attention-grabber, such as a personal story or an anecdote that helps the audience relate personally to the landscape around them. Work in “universals”—values and concepts everyone can relate to, such as family, tradition, natural beauty, etc.
- On a trail leading up to a mountain glacier, point out evidence of past glacial extent, such as cirques (steep-walled hollows in a mountainside formed by glacial erosion). Describe the mountains’ geologic history and

how glaciers have expanded and receded repeatedly over geologic time. (You will need a reference guide to your particular park for this information.)

- Ask the audience: *Why aren’t the glaciers down here at this altitude any more? What would cause a glacier to expand or contract?* (If nobody answers right away, prod the audience with questions about why snow and ice appear in the winter and disappear in the spring.) Answer: changes in climate—specifically, changes in temperature and precipitation.

Transition

- If historical data are available on the extent of mountain glaciers in your park, use a map to help visitors visualize the area formerly covered by mountain glaciers compared with their size today.
- Hold up the flash card showing how Boulder Glacier in Glacier National Park looked in the 1930s compared with how it looked in the 1980s. *As you can see, Boulder Glacier has been shrinking rapidly over the past 70 years. In fact, the park’s largest glaciers are now only about a third of the size they were in 1850. Mountain glaciers in many other parts of the world are shrinking, too.*

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Scientists now believe that Boulder Glacier, along with all the other mountain glaciers in Glacier National Park, will probably disappear within the next 30 years. Why might this be happening? (Correct answer: global warming.)

Body of Talk

- **Changes in climate occur naturally. They have been happening for as long as the Earth has had a climate. But many scientists believe that the changes underway today are different. They believe that humans are accelerating the rate of change by contributing to a global warming trend.** Explain what global warming is and how it happens. (This information may be found in the Western Mountains and Plains case study and the basic and advanced fact sheets.)
- **Melting glaciers aren't the only possible effect of global warming in this region.** Describe impacts on cold water fish, alpine meadows, and ducks. (This information may be found in the Western Mountains and Plains case study.) Use trail cards of alpine meadow, pintail duck, and cutthroat trout from the toolkit to show images of affected species and explain briefly

why global warming would affect each of them.

- **Do you want to see the park change in these ways? Is there anything we can do about it?** Discuss how everyone contributes to global warming and everyone can be part of the solution. Explain that people's choices can have an effect on the atmosphere and climate for decades into the future.
- Ask the audience to suggest ways to reduce their own emissions. Be prepared with your own suggestions in case people have trouble coming up with ideas. Suggestions might include using energy more efficiently at home (e.g., buying energy-efficient ENERGY STAR® appliances, replacing incandescent light bulbs with compact fluorescents wherever practical), taking public transportation or walking when possible, and buying products manufactured from recycled materials—such as recycled paper or fleece clothing made from recycled plastic bottles.
- Bring out the global warming wheel card and choose a volunteer to answer questions about his/her household's home energy use, transportation habits, and waste practices to come up with a rough estimate of the household's

greenhouse gas emissions. Then flip over the card to show how the household could reduce emissions by taking the actions shown on the wheel card.

Conclusion

- **Change is part of life, and some climate change is natural. But it appears that by burning fossil fuels, we humans are contributing to rapid changes that may take place faster—and perhaps on a greater scale—than the natural changes we would expect to experience in this region over the next several hundred years.**
- **We have to decide whether these human-induced changes are acceptable, and how much change we are willing to tolerate before we act.**
- **We can't look into a crystal ball and know for sure what the future will bring. But the majority of scientists today believe that human-induced global warming is for real and that many of the impacts we've discussed today will be caused by our actions, our choices.**
- **Climate change is a problem that can be alleviated by individual actions. Every one of us contributes to global warming, and every one of us can**

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make a difference. This isn't just an issue for big companies and electric utilities and governments. If we all act to reduce our emissions, we can help reduce the impacts of climate change on beautiful places like this.

■ *Is it important to you to know that future generations of hikers could still come to a place like Glacier National Park and find glaciers in the mountains and trout in the streams? Is it important enough to warrant changes in your lifestyle in order to avoid environmental changes in the future? The responsibilities of stewardship are becoming more complicated than they used to be. At one time, simply conserving land and water may have been enough. But now we need to start thinking about the atmosphere as well. Maybe our actions, and those of our neighbors, communities, and nations, can help slow the changes to glaciers and streams in Glacier National Park.*

■ *Do we want to experiment with our atmosphere and our planet to find out if our actions indeed have a long-lasting impact on the environment?*

Global Warming —

What's Your Score?

In the United States, a typical household of two people generates approximately 60,000 pounds of carbon dioxide (CO₂) emissions every year from household activities and personal transportation.

EMISSIONS SOURCE

On average, how much does your household spend on natural gas or fuel oil each month? Pick closest amount.

- \$25
- \$50
- \$100

POUNDS OF CO₂ EMITTED PER YEAR

- 10,000 lbs./year
- 15,000 lbs./year
- 25,000 lbs./year

Home Heating

EPA United States Environmental Protection Agency
Office of Air Quality Radiation Office of Air Quality
EPA-430-F-0-007 November 2006

Resources

- *Climate Change, Wildlife, and Wildlands* toolkit
- EPA's global warming site: www.epa.gov/globalwarming
- EPA state fact sheets: www.epa.gov/globalwarming/impacts/stateimp/